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मानक

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Mazdoor Kisan Shakti Sangathan

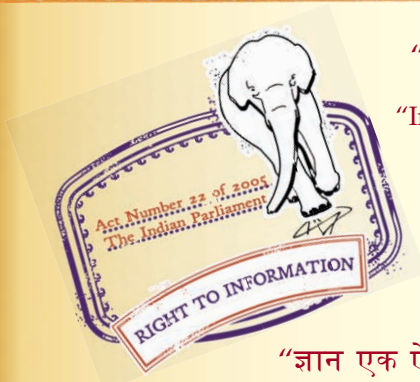
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“Step Out From the Old to the New”

IS 3179 (1990): Engineering metrology - Feeler gauges [PGD
25: Engineering Metrology]



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Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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भारतीय मानक
इंजीनियरी माप विज्ञान — फीलर गेज
(दूसरा पुनरोक्षण)

Indian Standard
**ENGINEERING METROLOGY — FEELER
GAUGES**
(Second Revision)

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BUREAU OF INDIAN STANDARDS
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NEW DELHI 110002

FOREWORD

This Indian Standard (Second Revision) was adopted by the Bureau of Indian Standards on 13 March 1990, after the draft finalized by the Engineering Metrology Sectional Committee had been approved by the Light Mechanical Engineering Division Council.

This standard was originally published in 1965. First Revision was issued in 1976 reducing the number of sets from 7 to 4. This second revision has been brought out in the light of prevailing technical practices in the country. Number of sets has been increased from 4 to 5 and 4 different lengths have been included to serve all interests.

In the preparation of this standard, considerable assistance has been derived from BS 957 (Part 2): 1969 'Feeler gauges—Part 2: Metric units' issued by the British Standards Institution (BSI).

Indian Standard

ENGINEERING METROLOGY — FEELER GAUGES

(Second Revision)

1 SCOPE

1.1 This standard covers the requirements for feeler gauges comprising a series of gauging blades of graded thicknesses from 0.03 to 1.00 mm and assembled in a protective sheath.

2 REFERENCES

2.1 The following Indian Standard is necessary adjunct to this standard:

IS No.	Title
1501 (Part 1) : 1984	Method for Vickers hardness test for metallic materials: Part 1 HV 5 to HV 100 (second revision)

3 DIMENSIONS AND TOLERANCES

3.1 The blades shall have the following thicknesses assembled in the sets in the manner given below (see also Fig. 1). The order in which the blades are given in the sets below may not be the most suitable for assembly. It is desirable that each thin blade should be given the maximum protection by being interleaved between two thicker blades:

Sl No.	No. of Blades in Set	Thickness of Blades in mm
1	10	0.05 to 0.20 in steps of 0.05, and 0.30 to 0.08 in steps of 0.10
2	13	0.05 to 0.30 in steps of 0.05, and 0.40 to 1.00 in steps of 0.10
3	13	0.03 to 0.10 in steps of 0.01, and 0.15, 0.20, 0.30, 0.40 and 0.50
4	20	0.05 to 1.00 in steps of 0.05
5	28	0.05 to 0.14 in steps of 0.01, and 0.15 to 1.00 in steps of 0.05

NOTE—In view of the delicate nature of 0.03 and 0.04 mm blades, it is recommended that these may be included in duplicate in the set.

3.2 Length

The following effective lengths (*L*), are recommended (see Fig. 1):

75, 100, 250 and 300 mm

3.3 Width

The blades shall be approximately 10 mm wide at the heel and may be parallel or tapered. The outer ends of blades shall be approximately semi-circular. Blades if tapered shall be tapered for the outer part of their length so that the width of the tip is approximately 6 mm.

3.4 Accuracy

The thickness of a blade shall not depart from its nominal value by more than the amount given in col 2 of Table 1, and any variation in thickness in each blade shall not exceed the amount given in col 3 of Table 1.

Table 1 Tolerances on Thickness of Blades
(Clause 3.4)

All dimensions in millimetres.

Nominal Thickness of Blade	Permissible Departure from Nominal Thickness	Permissible Variation in Thickness of Blade
(1)	(2)	(3)
0.03 up to and including 0.04	± 0.004	0.004
Above 0.04 up to and including 0.35	± 0.005	0.005
Above 0.35 up to and including 0.65	± 0.008	0.008
Above 0.65 up to and including 1.00	± 0.010	0.010

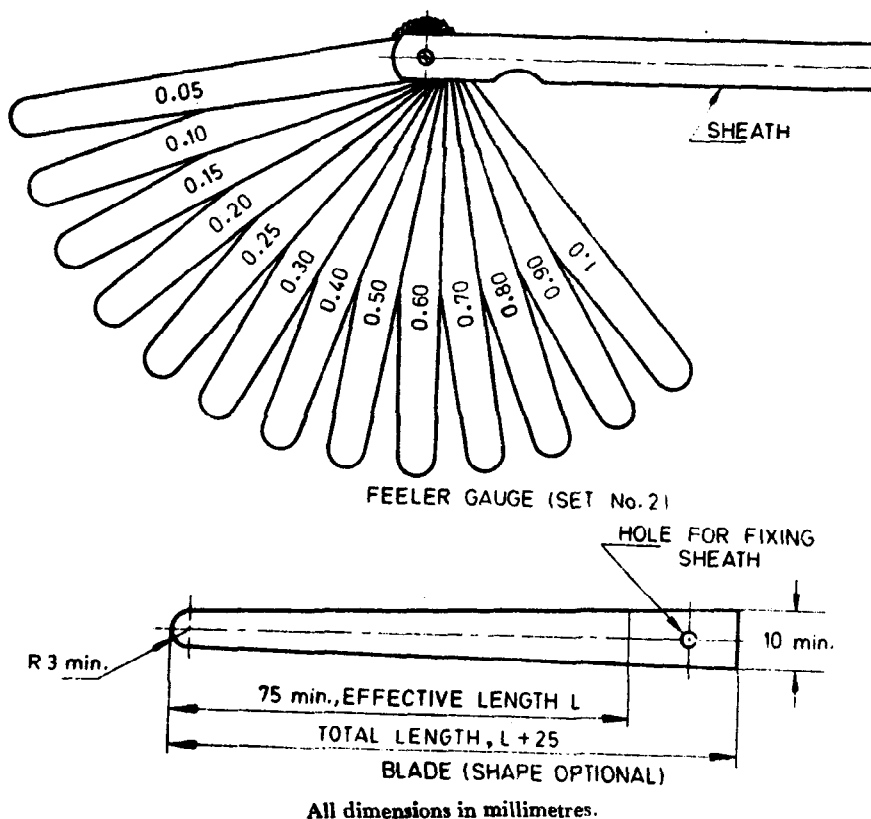


FIG. 1 DIMENSIONS AND ASSEMBLY OF FEELER GAUGE

4 MATERIAL

4.1 The Blades shall be made from suitable quality steel and shall be hardened and tempered to a hardness of not less than 400 HV and not more than 600 HV.

4.2 Blades in the thickness range above 0.3 mm shall be tested for hardness in accordance with IS 1501 (Part 1) : 1984 using a test load of 50 N which shall be applied for 15 seconds. Blades less than 0.3 mm thick should be subjected to a scratch comparison test whereby the blade shall be placed on a hard, polished surface and scratched with a diamond tipped or hard steel stylus which has a tip radius of approximately 0.6 mm. The mark produced shall then be compared with a similar mark produced on a steel test piece of known hardness in the range 400-500 HV. The mark shall be made in the same manner and using the same force on both the feeler blade and the test piece.

5 GENERAL REQUIREMENTS

5.1 Sheath

The blades shall be hinged in the sheath on a screw and nut of such a design that the blades are removable. The nut shall be in the form

of a bush passing through both sides of the sheath and forming a hinge upon which the blades may be rotated. The sheath shall be so designed as to fully protect the blades, when not in use.

5.2 Finish

The blade surfaces and edges shall be free from deformations and shall have a smooth finish. The blades shall be free from sharp edges throughout.

6 DESIGNATION

6.1 Feeler gagues shall be designated with:

- a) Set number,
- b) Length, and
- c) Number of this standard.

Example:

Feeler gagues of set No. 2, length 100 mm and conforming to the requirements of this standard shall be designated as:

Feeler Gagues Set 2 Length 100 IS 3179

7 MARKING

7.1 Blades

Each blade shall be legibly and permanently marked with nominal thickness in millimetres and the marking should not protrude above the surface.

7.2 Sheath

Sheaths shall be legibly and permanently marked with the following:

- a) Word 'mm',
- b) Word 'Set No.',
- c) Range of feeler gauges, and
- d) Indication of the source of manufacture.

7.3 Standard Marking

The feeler gauges may also be marked with the Standard Mark, details of which may be obtained from Bureau of Indian Standards.

8 PACKING

8.1 As a protection against climatic conditions the blades and the sheath shall be coated with lanolin or other suitable anticorrosive preparation.

NOTE — Certain types of preparations, having a petroleum jelly base have been found suitable, but it is necessary to select a preparation which will not cause staining or gumming together of the blades.

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Amendments Issued Since Publication

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